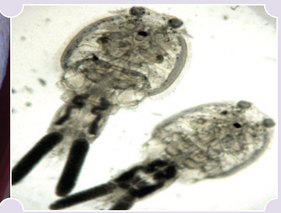
- Loss of appetite in debilitated fishes. Massive mucous secretions.

Lesions

- Deposition of parasitic eggs with in the corneal surface (d).
- *Caligus* (e) penetrate beneath the skin surface, and cause deep punch marks all over the body surface.
- Area of inflammation and necrosis at the penetrated portion of the skin

d. *Caligus* infested fish



e. Pompano infested by *Caligus cossackii* Bassett-Smith,1898 female

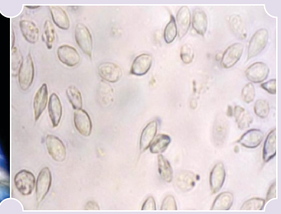
Treatment

- Fresh water dip, reduce the salinity to 5ppt, immersion in irritants like Euginol, Formalin, Hydrogen Peroxide, Iodophore and Potassium Permanganate facilitate the detachment of *Caligus* spp.
- Keep the fish in fresh water.

iii) Myxosporidiosis

- Myxosporean parasites are a significant group of parasitic protozoans, with more than 1330 species described.
- Typically they occur in the organ cavities and tissues of fish, apparently having little or no deleterious effect. However, certain species are known to cause severe tissue reactions and occasionally the death of the host.
- The *Henneguya* spp. infestation was observed in pompano broodstock (f & g). Environmental stress as a predisposing factor, together with overcrowding, increases the susceptibility of fish to infestation by Myxosporeans.

f. Intestine plasmodium



g. Spores of *Henneguya* spp

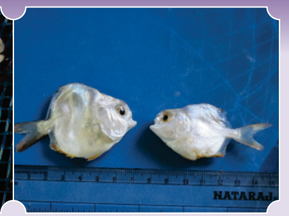
Treatment

- There is no treatment for the Myxosporean protozoa.
- Quarantine measures, disinfection of the rearing tank may help to prevent this spores spread.

SKELETAL DEFORMITIES

- Skeletal deformities are commonly encountered in both cultured and wild fish, with a higher frequency in hatchery populations. Such anomalies can cause economic loss to the fish farmers.
- Musculoskeletal anomaly (h), Kyphosis, Lordosis and Scoliosis (KLS complex) (i) anomalies are commonly observed in the cultured pompano fingerlings. Evidence suggest that such abnormalities are induced during the embryonic and post-embryonic periods of life and it has been proposed that these conditions have a multifactorial aetiology like genetic, nutritional and environmental factors/alterations.
- It may be prevented by supplement of mineral mixtures and probiotics along with the feed to the brood stock and fingerlings.

h. Musculoskeletal anomalies-Dorso ventral, dorsal and ventral anomaly



i. KLS complex

Treatment

- Selective culling should be practiced in the hatchery system to avoid the economic loss.

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Diseases of Silver Pompano in Hatchery

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Introduction

The silver pompano, *Trachinotus blochii* is one of the suitable candidate species for aquaculture due to its fast growth, and good meat quality. Silver pompano grows excellently in low salinity (as low as 8 ppt) and has good adaptability to different farming environments. This species easily accept artificial feeds as it is omnivorous. It can be successfully cultured in tanks, ponds and cages.

The Mandapam Regional Centre of Central Marine Fisheries Research Institute (CMFRI) has initiated the broodstock development of Pompano during 2008.

Fish cultured in floating cages or in the hatcheries become particularly susceptible to diseases when various environmental parameters such as temperature, salinity, dissolved oxygen and suspended particles fluctuate suddenly or widely, or following rough handling operation.

Bacterial, viral and parasitic diseases cause mass mortality and severe economic losses to farmers. In this brochure, Common diseases of pompano their symptoms, diagnosis, therapeutic and prophylactic methods are described,

A. BACTERIAL DISEASES

1) Granulomatous necrotic disease

Bacillus spp. is a genus of Gram positve, rod shaped bacteria, one of the emerging pathogens, affecting immunologically suppressed fishes, leading to severe necrosis and granulomatous lesions.

Cause: *Bacillus cereus*

Clinical signs

- Loss of appetite
- Emaciation and loss of body weight
- Acute mortality

Lesions

- Swelling or granulomatous lesions can be observed in tail region
- Cut section of swollen areas showed necrosis of muscle tissue

internal organs.

a. Granuloma & Congestion b. Granuloma of spleen and kidney

2) Septicaemia due to *Streptococcus* spp.

Cause: *Streptococci* spp.

Clinical signs

- Loss of appetite
- Surfacing
- Emaciation and abdominal swelling
- Sudden mortality

Lesions

- The external skin surface showed severe haemorrhage and redness in the lower abdomen
- Abdominal cavity revealed presence of clear transparent peritoneal fluid 5 to 8 ml
- Liver focal congestion at the caudal lobe

B. VIRAL DISEASE

Cause: Genus: *Betanodavirus*

Betanodavirus cause a disease in marine fish called viral nervous necrosis (VNN) or viral encephalopathy and retinopathy (VER).

Clinical signs

Uncontrolled and abnormal swimming behavior, changes in skin pigmentation (either darkening or lightening)

Lesion

Brain – Histopathology: vacuolation ("holes" or "swiss cheese") appearance

Treatment

No treatment for the viral diseases. Selective breeding and purchase of disease free seed are essential.

C. PARASITIC INFESTATIONS

Pompano is more prone to parasitic infestation. Poor water quality and high salinity may predispose to the occurrence of infestations.

i) Disease: *Amyloodiniosis* or Marine velvet disease

Cause: The dinoflagellate *Amyloodinium ocellatum*

Life cycle

- The feeding stage of *A. ocellatum*, known as trophont. The trophont attaches to the fish by anchor-like roots or rhizoids and infests the gills, fins and body of the host fish. It feeds on the epithelial tissues of the skin and gills for several days before detaching from the host (c).
- The encysted infective stage is known as tomont. That subdivides internally to form more than 200 numbers of infective dinospores.
- Trophont and tomonts resist against the treatment and disinfectants
- The excysted dinospores are freely swimming in the water which will attach the host again and develop as trophont.

Clinical signs

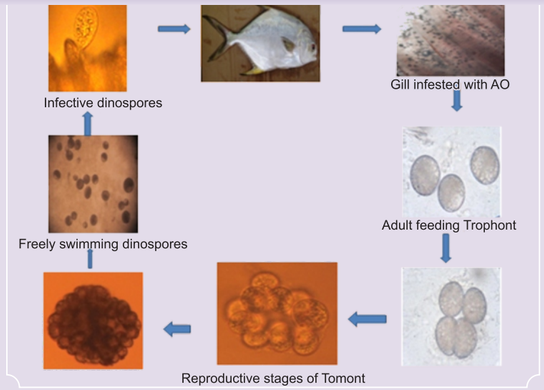
- Loss of appetite
- Abnormal swimming and rubbing its body on the tank
- Sluggish swimming and surfacing

Lesions

- Darkening of the skin and fin
- No characterized gross lesions
- Swabs from gill surface showed infected trophonts

Treatment

- Only the free-swimming dinoflagellate form of the organism (Dinospore) is susceptible to treatment.



c. Pompano infested with AO

The encysted form is not susceptible to any treatment.

- The reproductive state of tomonts settled in the bottom of the tank and complete their reproduction by release of infective dinospores. So disinfecting tank and equipment is needed to prevent the reoccurrence of the infestation.
- Fresh water dip for 2-3min. It will remove the *Amyloodinium* from the fishes which are in the dinospores stage. It needs several fresh water dip treatment to remove other stages of *Amyloodinium*.
- The most common treatment is the use of copper in water. Water that has free copper at the level of 0.2 mg/l is used in treating fish that are affected by *Amyloodinium*.
- Formalin dip 200ppm for 10-15 min.
- Shift the fish to separate disinfected tanks.

ii) Caligus infestation

Cause: *Caligus cossackii* Bassett-Smith, 1898

Clinical signs

- Abnormal swimming behavior, rubbing, darkened body colour, extensive abrasions on the body surface and altered swimming behavior.